

NOAA SECTORAL APPLICATIONS RESEARCH PROGRAM (SARP) FY 2009 INFORMATION SHEET

I. Program Overview and Goals

The Sectoral Applications Research Program (SARP) supports the overarching goals of the NOAA Climate Program¹ by developing the knowledge base, decision support tools, capacities and partnerships in sectors affected by climate in a substantial and increasingly visible way. SARP is designed to catalyze and support interdisciplinary research, innovative outreach and education activities that enhance the capacity of key socio-economic sectors to respond to and plan for climate variability and change through the use of climate information and related decision support resources. The program is designed to systematically build an interdisciplinary and expressly applicable knowledge base and mechanism for the creation, dissemination and exchange of climate-related research findings and decision support resources critical for understanding and addressing resource management challenges in vital social and economic sectors (e.g., coastal resources, water, agriculture, health, etc.).

The overarching goals of SARP are the following:

1. To provide new and/or synthesized science-based knowledge that results in the identification of impacts and societal vulnerability, and the enhanced capacity to cope with and adapt to climate variability and change in key socioeconomic sectors;
2. To enhance and increasingly sophisticate use of climate information and related decision support resources in sector-specific decision making on various scales (e.g. local, state, national, international);
3. To provide sector-specific insight and feedback related to stakeholder needs and capabilities that contribute to the development of an increasingly effective and relevant climate research and decision support effort; and
4. To develop partnerships and linkages designed to advance the infusion of climate information in sector-specific decision making processes through involvement with interagency efforts (e.g., CCSP), Federal initiatives (e.g., National Integrated Drought Information Service), and broader NOAA mandates and goals (e.g., coastal resource management).

¹ The goal of the NOAA Climate Program is to understand and describe climate variability and change to enhance society's ability to plan and respond.

Information about current and past SARP projects can be found at http://www.climate.noaa.gov/cpo_pa/sarp/.

II. Program Approach and Structure

SARP pursues its objectives through the establishment of sector projects (e.g., current projects focus on Coastal and Water Resources Management) that are composed of a combination of competitive applications research/decision support resource development, outreach and community building, including the creation of productive partnerships with sector-specific decision making and technical entities. These activities are conducted within a sectoral framework that provides a construct for defining: the nature, requirements and capabilities of a relatively bounded suite of stakeholders; the applications and decision support research priorities and associated interdisciplinary community to tap into (or to stimulate) to address these needs and priorities; and the key partners needed to effectively create, disseminate and apply climate information in a particular sector. The identification of these sectors depends upon NOAA priorities, program budgets, and input from the Federal, research and decision making communities.

From a programmatic perspective, each of these sector projects can be viewed as organizing/integrating systems that serve as a plane for understanding and addressing many complex socioeconomic issues that are influenced by climate, and for developing linkages with specific decision makers and partners. While a common framework and approach will be utilized for all of the SARP sector projects (e.g., stakeholder requirements workshops, competitive funding opportunities to advance decision support resource development), the exact nature of the research activities and partnerships developed for each is, and will be, highly influenced by a sector's information needs, partners, and state of readiness.

For each sector effort, SARP will:

- Identify key climate-sensitive decision making processes and information needs, including gaps in understanding of socioeconomic impacts and awareness of existing and emerging decision support resources.
- Increase the awareness and understanding, on the part of the general public and specific decision making sectors, of climate variability and change, and the potential use of climate science, products and services through outreach and education activities.
- Catalyze and develop innovative decision support resources and tools, and advance their prototype implementation and evaluation.
- Foster sustainability of NOAA research by involving decision makers and technical entities as partners from the inception of the project.
- Provide focused feedback in terms of decision making needs and capacities to NOAA, the Climate Change Science Program (CCSP), National Academy of Sciences, the broader research community, and other stakeholders in climate research and applications.

III. FY 2009 Funding Opportunities

In FY 2009, SARP is soliciting proposals in the following areas:

- 1) Coastal Resource Management;
- 2) Drought, in support of the U.S. National Integrated Drought Information System (NIDIS); and
- 3) Water Resources Management.

We anticipate supporting a balanced suite of projects across these three areas. All projects are expected to a) involve stakeholders in the design and assessment of the research activities; and b) develop innovative and transferable methods for understanding and adapting to changes in climate. The following section provides additional details about the respective foci for FY 2009.

1) SARP: Coastal Resource Management

The SARP Climate and Coastal Resource Management (CCRM) project seeks to catalyze and support applications research that links climate science with practical challenges in coastal regions. Over 50% of the world's population resides on or near the coast. Coastal communities face a complex suite of interrelated issues which can be affected by climate change and variability, including sea level rise, shoreline erosion, population growth and development, hazard mitigation and the health and well-being of estuarine, coastal wetland and coral reef systems. While there is increasing interest across multiple scales of decision making (community to regional to international) in the identification of vulnerabilities and the development of adaptive measures for coping with climate change and variability in coastal regions, there are gaps in understanding and institutional capacities that must be addressed in order to bring about more effective adaptation methods and resilient socio-economic systems.

In 2009, the SARP Coastal Project invites proposals for research activities that will lead to improved management of coastal areas and resources in the face of climate change and variability through a better understanding of climate impacts and the applications of climate research and information. The primary coastal theme for SARP in 2009 is the role of climate and climate information and knowledge-to-action networks in the development of enhanced community resilience to hazards across multiple time scales, including those related to sea level rise, inundation and extreme events. Within this context, topics of interest include impacts and vulnerability analysis, the development and prototype implementation of decision support tools, and the development of outreach/education/extension materials and methodologies. Specifically, SARP will support projects that address one or more of these topics:

- Assess impacts associated with climate change and variability - including indirect or secondary economic impacts - develop socioeconomic baselines and vulnerability assessments, and/or tools for generating risk and adaptation scenarios;

- Analyze and quantify the benefits of enhancing preparedness in coastal regions facing impacts related to climate change in conjunction with dynamic socioeconomic changes;
- Develop prototype decision support resources and methodologies that are designed to integrate climate science (including social, physical and natural aspects) into efforts to reduce vulnerability and increase community resilience in the face of climate change and variability, and related hazards (including insights into how such tools should be evaluated); decision support resources could include visualization tools, synthesis documents, handbooks for decision makers, etc.; or
- Provide innovative and transferable methodologies for public awareness and education frameworks for interacting with those affected by climate on actual and potential impacts, how they affect human and natural systems, and which actions can be undertaken to mitigate impacts in coastal regions.

For additional information about SARP’s coastal management focus for the next few months, please contact [Nancy Beller-Simms](#) at 301-734-1205 or nancy.beller-simms@noaa.gov. We are looking forward to the return of Lisa Vaughan, the Coastal Sector Program Manager, in 2009.

2) SARP: Drought, in Support of NIDIS

In June 2004, the Western Governors unanimously adopted a report entitled, “Creating a Drought Early Warning System for the 21st Century: The National Integrated Drought Information System (NIDIS)”. The Governors proposed a system that would provide all water users the ability to obtain drought information in real time in order to understand their risks and to be able to plan accordingly. In 2006, the President signed the NIDIS bill. In support of this effort, programs within NOAA’s Climate Program Office are providing funding for projects specifically addressing human populations coping with drought within the US or US transboundary areas. For FY 2009, SARP is particularly interested in funding research projects that address the risk perception, analysis and management as well as specific socioeconomic and institutional aspects of drought planning that:

- Characterize climate-related risk perception by institutions faced with making decisions in a changing climate;
- Assess the components and types of risk analysis that are needed for planning for a changing climate;
- Assess impacts including indirect or secondary economic impacts, develop socio-economic baselines, and/or tools for generating drought risk scenarios (e.g. water supply analyses);

- Understand how a jurisdiction (local, regional or state) plans to respond to water demand in the face of drought. Specifically we are interested in understanding how decisions are made to allocate water given competing needs from the residential, agricultural and environmental sectors.
- Analyze the benefits of mitigation and preparedness for drought impacts, including an examination of short-term decision making in the context of long-term adaptation.

It is not our intention that one award would address all of these items.

Awardees would be required to report findings and communicate throughout the lifetime of the grant with both NOAA - SARP and NIDIS personnel. For additional information about SARP's drought focus, please contact Nancy Beller-Simms at 301-734-1205, or Nancy.Beller-Simms@noaa.gov.

3) *SARP: Water Resources Management*

There has been an unprecedented growth in the world's urban population in the last few decades. In 2000, nearly half of the world's population lived in urban areas; by 2030, there are estimates that 60 percent of the world's population will be urban. As a result of this growth, the population has had to expand into areas previously deemed less desirable and/or safe. Concurrently, there is a realization of the potential impact of climate in urban areas and the necessity to include climate variability and change in present and future planning efforts. As a result, this year's water resource management competition will highlight the nation's adaptation challenges with respect to the influence of climate variability and change in urban environments and point us toward specific products and information services that will enhance response/coping capacity. Specifically, SARP will support projects that address one or more of the following topics:

- characterize climate related risk and/or vulnerability by urban institutions faced with making decisions about managing water resources in a changing climate. We are interested in determining what variables influence them to respond proactively to threats and potential hazards and would like to identify future hot spots that will be vulnerable to a changing climate.
- assess the costs of a changing climate, both those that relate to impacts and those that relate to response strategies, including adaptation and mitigation (within an urban water management arena).
- identify processes that influence success or failure in the creation of knowledge-to-action networks for making climate information useful for decision making (within an integrated water management arena).
- develop decision support tools and pilot projects for water planners in an urban environment that reduce vulnerability and increase resilience in the face of climate

variability and change as well as integrate climate science into key decisions.

- create innovative and transferable methodologies and products to develop public awareness and education efforts that identify strategies for mitigating impacts on water resources in urban areas.

Please note that (1) we expect that proposals will not cover all of these topics and (2) the projects may address one specific urban area; urban areas within a basin or region; a comparative analysis between urban areas; or a tool for urban areas in general. For additional information about SARP's water resources focus, please contact Nancy Beller-Simms at 301-734-1205, or Nancy.Beller-Simms@noaa.gov.

IV. Project Approaches

This section is intended to provide additional information regarding the traditional nature of the individual research projects supported by SARP.

Nature of SARP Investigator Teams

Multidisciplinary teams of investigators are often best suited for addressing the complex issues related to climate, society and enhanced adaptation through the use of science and technology. Thus, the SARP effort encourages proposals from PI teams comprised of different social science disciplines or across the disciplines of the social, natural and physical sciences. In the past, many of the successful projects have integrated social with natural or physical science components to form a more comprehensive analysis of the dynamics of climate-human interactions. Furthermore, proposals involving decision makers/stakeholders/resource managers as direct participants are highly encouraged. Finally, the proposal should include an explanation of the roles of the investigators and how the team will interact and integrate the multiple components. Investigators who will not be requesting funds for salaries must also be listed along with their estimated time of commitment.

Transferability

The proposals that have been most successful in securing funding in the past had components within the research or application that could be used in other locations or sectors.

Regional Focus, Stakeholder Participation, and Partnerships

Unless otherwise noted, SARP projects can be focused on regions in the US or overseas where the impacts of climate variability are acute and/or significant and are relevant to NOAA interests. Research teams should present evidence of strong collaborations with local researchers and institutions (e.g., NGOs, extension services, state and local governments, representative private sector organizations) in the region of study. Letters of support from local collaborators and supporters should be included with the proposal.

We encourage projects to include an evaluation component at the end of the project (and/or earlier if appropriate) that involves stakeholders, and evidence of stakeholder support (e.g., cost-sharing, letters of support). In addition, we encourage the development or strengthening of partnerships between researchers and critical decision-making institutions. We also welcome participation with other federal, state and local agencies.

Funding Levels

Projects should involve decision makers and/or resource managers in the design, implementation, and evaluation of the project. The total project cost is expected to fall between \$50k - \$300K. Projects should be 6-24 months in duration, with a clear and discrete outcome/impact at the end of this period. Cost sharing is encouraged.

Specifics about the Proposal

Proposals that can show that they are building on what is already known from the published literature about the proposed topic (e.g., value of climate information, decision making under uncertainty, use/transfer of new scientific information, integrated modeling of natural and human systems, impact of climate on sector activities, sectoral decision making analyses) prove that the PIs have a comprehension of the topic and that their proposed work will augment the existing science. Projects that have been funded through SARP (or its predecessor programs) are listed on our website along with associated annual and final reports (www.climate.noaa.gov/cpo_pa/sarp).

We encourage investigators to: 1) describe in extensive detail the proposed methodology and how it will be accomplished; 2) clearly define expected outcomes; 3) provide a descriptive benefit analysis of the outcome; 4) describe their plan to measure the success of the project's outcome; and 5) describe a dissemination plan for the study's results. (Please note that support for extensive modeling of the physical and natural system is more appropriately handled through climate science programs both within the other sections of NOAA's Climate Program Office and other agencies.)

Communication of Results and Progress Reports

Investigators will be expected to provide annual progress reports in a prescribed format that highlight scientific progress as well as linkages to practical applications (see the "Community Corner" section of the website (http://www.climate.noaa.gov/cpo_pa/sarp/)). We also encourage creative methods of conveying the results of work done under the grant or more general knowledge about climate-human interactions to the broader community of researchers and decision makers. For example, information can be displayed on websites, in non-scientific newsletters, on CDs, on short video documentaries that can be copied and disseminated, etc.

We highly recommend successful grant recipients to provide digital video and/or photographs of fieldwork (if applicable). These could be used in future NOAA websites, presentations and/or publications. Efforts to synthesize methodologies so that that might be transferred and applied in other sectors/regions are encourage. Finally, SARP PIs are required by program management to report their findings in a specific template upon the completion of their project; the template can be found under the "Community Corner"

section of the website (http://www.climate.noaa.gov/cpo_pa/sarp/). We encourage applicants to the program to be aware of the types of information that will be required at the end of the project as they develop new proposals.

List of Suggested Reviewers (optional)

Proposers are invited to include a list of suggested reviewers who they believe are especially well qualified to review the proposal. These suggestions are optional and the decision whether or not to use the suggested reviewers remains with the Program Manager. All reviewers will eventually be asked to sign a conflict of interest statement.

Interaction with NOAA

Applicants whose proposals are chosen for funding will be expected to undertake an ongoing dialogue with NOAA's Climate Assessments and Services Division. Part of this dialogue may consist of a Principal Investigators' meeting of funded projects to discuss common questions and frameworks to be addressed in the new research projects and periodic teleconferences with other SARP-funded Principal Investigators.

For further information, contact Nancy Beller-Simms (301-734-1205); Nancy.Beller-Simms@noaa.gov) for the near term. Lisa Vaughan will be returning in 2009.